

CLAIMS

What is claimed is:

- 1 1. An apparatus, comprising:
2 a thermally conductive core;
3 a thermally conductive frame positioned around the core, the frame
4 defining at least one opening; and
5 at least one thermally conductive insert disposed in the opening in the
6 frame.
- 1 2. The apparatus of claim 1, wherein the frame defines an opening adapted
2 to receive the core and the core is disposed inside the opening adapted to receive the
3 core.
- 1 3. The apparatus of claim 2, wherein the core includes a post and base, with
2 the base protruding from the frame.
- 1 4. The apparatus of claim 1, wherein the core and frame are monolithic.
- 1 5. The apparatus of claim 1, wherein the frame includes a framework of
2 members defining an array of openings with the inserts disposed in the openings.
- 1 6. The apparatus of claim 5, wherein the framework includes a primary
2 member and a secondary member, wherein the primary member is thicker than the
3 secondary member.
- 1 7. The apparatus of claim 1, wherein the inserts include at least one insert
2 having a folded fin structure.
- 1 8. The apparatus of claim 1, wherein:
2 the core comprises a copper post;

3 the frame comprises extruded aluminum; and
4 the inserts comprise folded fin structures.

1 9. A method, comprising:
2 providing a thermally conductive core;
3 positioning a thermally conductive frame around the core, the frame
4 defining at least one opening; and
5 inserting a thermally conductive insert in the opening in the frame.

1 10. The method of claim 9, wherein the frame defines an opening adapted to
2 receive the core and the positioning comprises securing the core inside the opening
3 adapted to receive the core.

1 11. The method of claim 10, wherein the core includes a post and base, with
2 the base protruding from the frame.

1 12. The method of claim 9, wherein the core and frame are monolithic.

1 13. The method of claim 9, wherein the frame includes a framework of
2 members defining an array of openings and the inserting comprises inserting a plurality
3 of thermally conductive inserts in respective openings of the array of openings.

1 14. The method of claim 13, wherein the framework includes a primary
2 member and a secondary member, wherein the primary member is thicker than the
3 secondary member.

1 15. The method of claim 9, wherein the inserts include at least one insert
2 having a folded fin structure.

1 16. The method of claim 9, wherein:
2 the core comprises a copper post;

3 the frame comprises extruded aluminum; and
4 the insert comprise a folded fin structure.

1 17. A system, comprising:
2 a heatsink assembly, comprising:
3 a thermally conductive core;
4 a thermally conductive frame positioned around the core, the frame
5 defining at least one opening;
6 at least one thermally conductive insert disposed in the opening in
7 the frame; and
8 an electronic component thermally coupled to the core of the heatsink.

1 18. The system of claim 17, wherein the frame defines an opening adapted to
2 receive the core and the core is disposed inside the opening adapted to receive the
3 core.

1 19. The system of claim 18, wherein the core includes a post and base, with
2 the base protruding from the frame.

1 20. The system of claim 19, wherein the electronic component is thermally
2 coupled to the protruding base of the core, providing an air gap between the electronic
3 component and the heatsink.

1 21. The system of claim 21, furthering comprising a fan mounted to the
2 heatsink and configured to draw air through the heatsink outward from the electronic
3 component.

1 22. The system of claim 17, wherein the core and frame are monolithic.

1 23. The system of claim 17, wherein the frame includes a framework of
2 members defining an array of openings with the inserts disposed in the openings.

1 24. The system of claim 23, wherein the framework includes a primary
2 member and a secondary member, wherein the primary member is thicker than the
3 secondary member.

1 25. The system of claim 17, wherein the inserts include at least one insert
2 having a folded fin structure.

1 26. The system of claim 17, wherein:
2 the core comprises a copper post;
3 the frame comprises extruded aluminum; and
4 the inserts comprise folded fin structures.

1 27. The system of claim 17, further comprising:
2 a fan mounted to the heatsink.

1 28. The system of claim 27, further comprising:
2 a system board, with the electronic component mounted on the system
3 board.

1 29. The system of claim 28, further comprising:
2 a circuit card connected to the system board.

1 30. The system of claim 28, wherein the system board comprises a
2 motherboard and the electronic component comprises a microprocessor.

1 31. The system of claim 28, further comprising:
2 a display operably connected to the system board.